

MATERIAL SAFETY DATA SHEET

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320
Gaithersburg, Maryland 20899-2320

SRM Number: 997
MSDS Number: 997
SRM Name: Isotopic Standard
for Thallium

Date of Issue: 01 December 2004

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SECTION I. MATERIAL IDENTIFICATION

Material Name: Thallium

Description: This SRM consists of approximately 0.25 g of a commercial, high-purity thallium metal.

Other Designations: Thallium (ramor)

Name	Chemical Formula	CAS Registry Number
Thallium	$^{205}\text{Tl}/^{203}\text{Tl}$	7440-28-0

DOT Classification: Not classified.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Purity (%)	Exposure Limits and Toxicity Data
Thallium metal	100	TD _{Lo} (Oral-Man): 5.7 mg/kg
		OSHA TWA (Skin): 0.1 mg/m ³ (Thallium soluble compounds)
		UK OES TWA (Skin): 0.1 mg/m ³ (Thallium soluble compounds)

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Thallium	
Appearance and Odor: white metal, odorless	Molecular Formula: Tl
Density (g/cm³): 11.85	Molecular Mass: 204.38
Boiling Point (°C): 1447-1467	Water Solubility: Insoluble.
Melting Point (°C) : 304	Solvent Solubility: Soluble in nitric and sulfuric acids. Slightly soluble in hydrochloric acid.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not applicable. **Method Used:** Not applicable. **Autoignition Temperature:** Not applicable.

Flammability Limits in Air (Volume %): **UPPER:** Not applicable.
LOWER: Not applicable.

Fire and Explosion Hazards: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

Extinguishing Media: Dolomite, dry powder for metal fires, dry sand, graphite, soda ash, sodium chloride. Do not get water directly on material.

Special Fire Procedures: Move container from the fire area if it can be done without risk. Avoid inhalation of material or combustion by-products.

SECTION V. REACTIVITY DATA

Stability: X Stable Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition.

Incompatibility (Materials to Avoid): Halogens.

Hazardous Decomposition or Byproducts: Thallium.

Hazardous Polymerization: Will Occur X Will Not Occur

SECTION VI. HEALTH HAZARD DATA

Route of Entry: Inhalation Skin Ingestion

Effects of Overexposure (ACUTE):

Skin: There are no specific data available on the local effects of thallium metal.

Eyes: No data are available. If thallium metal is ground, dust may be irritating.

Inhalation: No specific data are available on inhalation of thallium metal.

Ingestion: No specific data are available on thallium metal.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	<u> </u>	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	<u> </u>	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	<u> </u>	<u> X </u>

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 min. Obtain immediate medical assistance.

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

Ingestion: Contact local poison control center or physician immediately. Do NOT induce vomiting or give something by mouth unless directed to do so by a physician. If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get immediate medical attention.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released: Collect spilled material in appropriate container for proper disposal.

Waste Disposal: Follow all federal, state and local laws governing disposal. Thallium is moderately toxic to aquatic life.

Handling and Storage: Wear safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Wear appropriate chemical resistant clothing and gloves. Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

NOTE: DO NOT wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Source: MDL Information Systems, Inc., MSDS *Thallium*, 18 March 2004.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.